APPENDIX H.
Description of Data Sources for Marketplace Analyses

To perform the marketplace analyses presented in Appendices D through G, BBC used data from a range of sources, including:

- U.S. Census Bureau Public Use Microdata Samples (PUMS) from the 1980 and 2000 Census;

- U.S. Census Bureau PUMS data from the 2007-2009 3-year American Community Survey (ACS);

- The Federal Reserve Board's 1998 and 2003 Survey of Small Business Finances (SSBF);

- The 2007 Survey of Business Owners (SBO), conducted by the U.S. Census Bureau; and

- Home Mortgage Disclosure Act (HMDA) data provided by the Federal Financial Institutions Examination Council (FFIEC).

The following sections provide further detail on each data source, including how it was used in marketplace analyses.

PUMS Data

Focusing on the construction and engineering industries, BBC used PUMS data to analyze:

- Demographic characteristics;

- Measures of financial resources;

- Educational attainment; and

- Self-employment (business ownership).

PUMS data offer several features ideal for the analyses reported in this study, including historical cross-sectional data, stratified national and state-level samples, and large sample sizes that enable many estimates to be made with a high level of statistical confidence, even for subsets of the population (e.g., ethnic and occupational groups).

BBC obtained selected Census and ACS data from the Minnesota Population Center's Integrated Public Use Microdata Series (IPUMS). The IPUMS program provides online access to customized,

accurate data extracts.[1] For the analyses contained in this report, BBC used the 1980 and 2000 Census five percent samples and the 2007-2009 ACS one percent sample.

2000 Census data. The 2000 U.S. Census five percent sample contains 14,081,466 observations. When applying the Census person-level population weights, this sample represents 281,421,906 people in the United States. The 2000 Georgia sub-sample contains 406,368 individual observations, weighted to represent 8,186,187 people.

Categorizing individual race/ethnicity. To define race/ethnicity for the 2000 Census dataset, BBC used the IPUMS race/ethnicity variables — RACED and HISPAN — to categorize individuals into one of seven groups:

- Non-Hispanic white;

- Hispanic American;

- African American;

- Asian-Pacific American;

- Subcontinent Asian American;

- Native American; and

- Other minority (unspecified).

An individual was considered "non-Hispanic white" if they did not report Hispanic ethnicity and indicated being white only — not in combination with any other race group. All self-identified Hispanics (based on the HISPAN variable) were considered Hispanic American, regardless of any other race or ethnicity identification.

For the five other racial groups, an individual's race/ethnicity was categorized by the first (or only) race group identified in each possible race-type combination. BBC used a rank ordering methodology similar to that used in the 2000 Census data dictionary. An individual who identified multiple races was placed in the reported race category with the highest ranking in BBC's ordering. African American is first, followed by Native American, Asian-Pacific American and then Subcontinent Asian American. For example, if an individual was identified as "Korean," this person was placed in the Asian-Pacific American category; if the individual was identified as "Korean" in combination with "Black," the individual was considered African American.

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[1] Steven Ruggles, J. Trent Alexander, Katie Genadek, Ronald Goeken, Matthew B. Schroeder, and Matthew Sobek. *Integrated Public Use Microdata Series: Version 5.0* [Machine-readable database]. Minneapolis: University of Minnesota, 2011.

- The Asian-Pacific American category included the following race/ethnicity groups: Cambodian, Chamorro, Chinese, Filipino, Guamanian, Hmong, Indonesian, Japanese, Korean, Laotian, Malaysian, Native Hawaiian, Samoan, Taiwanese, Thai, Tongan, and Vietnamese. This category also included other Polynesian, Melanesian and Micronesian races as well as individuals identified as Pacific Islanders.

- The Subcontinent Asian American category included these race groups: Asian Indian (Hindu), Bangladeshi, Pakistani, and Sri Lankan. Individuals who identified themselves as "Asian," but were not clearly categorized as Subcontinent Asian were placed in the Asian-Pacific American group.

- American Indian, Alaska Native and Latin American Indian groups were considered Native American.

- If an individual was identified with any of the above groups and an "other race" group, the individual was categorized into the known category. Individuals identified as "other race" or "white and other race" were categorized as "other minority."

For some analyses — those in which sample sizes were small — BBC combined minority groups.

Business ownership. BBC used the Census detailed "class of worker" variable (CLASSWKD) to determine self-employment. Individuals were classified into eight categories.

- Self-employed for a non-incorporated business;

- Self-employed for an incorporated business;

- Wage or salary employee for a private firm;

- Wage or salary employee for a non-profit organization;

- Employee of the federal government;

- Employee of a state government;

- Employee of a local government; or

- Unpaid family worker.

BBC counted individuals who reported being self-employed — either for an incorporated or a non-incorporated business — as business owners.

Study industries. The marketplace analyses focus on two study industries: construction and engineering-related services. BBC used the IND variable to identify individuals as working in one or the other industry. This variable includes several hundred industry and sub-industry categories. Figure H-1 identifies the IND codes used to define each study area for the 2000 Census analyses.

Figure H-1.
2000 Census industry codes used for construction and engineering-related services

Study industry	2000 Census IND codes	Description
Construction	77	Construction industry
Engineering-related services	729	Architectural, engineering and related services

Source: BBC Research & Consulting from the IPUMS program: http://usa.ipums.org/usa/.

Industry occupations. BBC also examined workers by occupation within the construction industry using the PUMS variable OCC. Figure H-2 summarizes the 2000 Census OCC codes used in the study team's analysis.

Figure H-2.
2000 Census and 2007-2009 ACS occupation codes used to examine workers in construction industry

Census 2000 and 2007-2009 ACS occupational title and code	Job description
Construction managers 22	Plan, direct, coordinate, or budget, usually through subordinate supervisory personnel, activities concerned with the construction and maintenance of structures, facilities, and systems. Participate in the conceptual development of a construction project and oversee its organization, scheduling, and implementation. Include specialized construction fields, such as carpentry or plumbing. Include general superintendents, project managers, and constructors who manage, coordinate, and supervise the construction process.
First-line supervisors/managers of construction trades and extraction workers 620	Directly supervise and coordinate the activities of construction or extraction workers.
Brickmasons, Blockmasons and Stonemasons 622	Lay and bind building materials, such as brick, structural tile, concrete block, cinder block, glass block, and terra-cotta block, Construct or repair walls, partitions, arches, sewers, and other structures. Build stone structures, such as piers, walls, and abutments and lay walks, curbstones, or special types of masonry for vats, tanks, and floors.
Carpenters 623	Construct, erect, install, or repair structures and fixtures made of wood, such as concrete forms, building frameworks, including partitions, joists, studding, rafters, wood stairways, window and door frames, and hardwood floors.
Carpet, floor, and tile installers and finishers 624	Apply shock-absorbing, sound-deadening, or decorative coverings to floors. Lay carpet on floors and install padding and trim flooring materials. Scrape and sand wooden floors to smooth surfaces, apply coats of finish. Apply hard tile, marble, wood tile, walls, floors, ceilings, and roof decks.
Cement masons, concrete finishers and terrazzo workers 625	Smooth and finish surfaces of poured concrete, such as floors, walks, sidewalks, or curbs using a variety of hand and power tools. Align forms for sidewalks, curbs or gutters; patch voids; use saws to cut expansion joints. Terrazzo workers apply a mixture of cement, sand, pigment or marble chips to floors, stairways, and cabinet fixtures.

Census 2000 and 2007-2009 ACS occupational title and code	Job description
Construction laborers 626	Perform tasks involving physical labor at building, highway, and heavy construction projects, tunnel and shaft excavations, and demolition sites. May operate hand and power tools of all types: air hammers, earth tampers, cement mixers, small mechanical hoists, surveying and measuring equipment, and a variety of other equipment and instruments. May clean and prepare sites, dig trenches, set braces to support the sides of excavations, erect scaffolding, clean up rubble and debris, and remove asbestos, lead, and other hazardous waste materials. May assist other craft workers. Exclude construction laborers who primarily assist a particular craft worker, and classify them under "Helpers, Construction Trades."
Paving, surfacing and tamping equipment operators 630	Operate equipment used for applying concrete, asphalt, or other materials to road beds, parking lots, or airport runways and taxiways, or equipment used for tamping gravel, dirt, or other materials. Include concrete and asphalt paving machine operators, form tampers, tamping machine operators, and stone spreader operators.
Miscellaneous construction equipment operators, including pile-driver operators 632	Operate one or several types of power construction equipment, such as motor graders, bulldozers, scrapers, compressors, pumps, derricks, shovels, tractors, or front-end loaders to excavate, move, and grade earth, erect structures, or pour concrete or other hard surface pavement. Operate pile drivers mounted on skids, barges, crawler treads, or locomotive cranes to drive pilings for retaining walls, bulkheads, and foundations of structures, such as buildings, bridges, and piers.
Drywall installers, ceiling tile installers and tapers 633	Apply plasterboard or other wallboard to ceilings or interior walls of buildings, mount acoustical tiles or blocks, strips, or sheets of shock-absorbing materials to ceilings and walls of buildings to reduce or reflect sound.
Electricians 635	Install, maintain, and repair electrical wiring, equipment, and fixtures. Ensure that work is in accordance with relevant codes. May install or service street lights, intercom systems, or electrical control systems. Exclude "Security and Fire Alarm Systems Installers." The 2000 category includes electrician apprentices.
Glaziers 636	Install glass in windows, skylights, store fronts, display cases, building fronts, interior walls, ceilings, and tabletops.
Painters, construction and maintenance 642	Paint walls, equipment, buildings, bridges, and other structural surfaces, using brushes, rollers, and spray guns. Remove old paint to prepare surfaces prior to painting and mix colors or oils to obtain desired color or consistency.
Pipelayers, plumbers, pipefitters and steamfitters 644	Lay pipe for storm or sanitation sewers, drains, and water mains. Perform any combination of the following tasks: grade trenches or culverts, position pipe, or seal joints. Excludes "Welders, Cutters, Solderers, and Brazers." Assemble, install, alter, and repair pipelines or pipe systems that carry water, steam, air, or other liquids or gases. May install heating and cooling equipment and mechanical control systems. Includes sprinklerfitters.
Plasterers and stucco masons 646	Apply interior or exterior plaster, cement, stucco, or similar materials and set ornamental plaster.
Roofers 651	Cover roofs of structures with shingles, slate, asphalt, aluminum, and wood. Spray roofs, sidings, and walls with material to bind, seal, insulate, or soundproof sections of structures

Census 2000 and 2007-2009 ACS occupational title and code	Job description
Iron and steel workers, including reinforcing iron and rebar workers 653	*Iron and steel workers* raise, place, and unite iron or steel girders, columns, and other structural members to form completed structures or structural frameworks. May erect metal storage tanks and assemble prefabricated metal buildings. *Reinforcing iron and rebar workers* position and secure steel bars or mesh in concrete forms in order to reinforce concrete. Use a variety of fasteners, rod-bending machines, blowtorches, and hand tools. Include rod busters.
Helpers, construction trades 660	All construction trades helpers not listed separately.
Driver/sales workers and truck drivers 913	*Driver/sales workers* drive trucks or other vehicles over established routes or within an established territory and sell goods, such as food products, including restaurant take-out items, or pick up and deliver items, such as laundry. May also take orders and collect payments. Include newspaper delivery drivers. *Truck drivers (heavy)* drive a tractor-trailer combination or a truck with a capacity of at least 26,000 GVW, to transport and deliver goods, livestock, or materials in liquid, loose, or packaged form. May be required to unload truck. May require use of automated routing equipment. Requires commercial drivers' license. *Truck drivers (light)* drive a truck or van with a capacity of under 26,000 GVW, primarily to deliver or pick up merchandise or to deliver packages within a specified area. May require use of automatic routing or location software. May load and unload truck. Exclude "Couriers and Messengers."
Crane and tower operators 951	Operate mechanical boom and cable or tower and cable equipment to lift and move materials, machines, or products in many directions. Exclude "Excavating and Loading Machine and Dragline Operators."
Dredge, excavating and loading machine operators 952	*Dredge operators* operate dredge to remove sand, gravel, or other materials from lakes, rivers, or streams; and to excavate and maintain navigable channels in waterways. *Excavating and loading machine and dragline operators* Operate or tend machinery equipped with scoops, shovels, or buckets, to excavate and load loose materials. *Loading machine operators, underground mining*, Operate underground loading machine to load coal, ore, or rock into shuttle or mine car or onto conveyors. Loading equipment may include power shovels, hoisting engines equipped with cable-drawn scraper or scoop, or machines equipped with gathering arms and conveyor.

Source: 2000 Census occupational titles and codes at http://usa.ipums.org/usa/volii/00occup.shtml, job descriptions from the Bureau of Labor Statistics www.bls.gov.

Education variables. BBC used the variable indicating respondents' highest level of educational attainment (EDUCD) to classify individuals into four categories:[2]

- Less than high school;

- High school diploma;

- Some college or associate's degree; and

- At least a bachelor's degree.

[2] In the 1940-1980 samples, respondents were classified according the highest year of school completed (HIGRADE). In the years after 1980, this method was used only for individuals who did not complete high school, and all high school graduates were categorized based on the highest degree earned (EDUC99). The EDUCD variable merges two different schemes for measuring educational attainment by assigning to each degree the typical number of years it takes to earn.

Definition of workers. The universe for the class of worker, industry and occupation variables includes workers 16 years of age or older who are gainfully employed and those who are unemployed but seeking work. "Gainfully employed" means that the worker reported an occupation as defined by the Census code, OCC.

1980 Census data. BBC compared 2000 Census data with data for the 1980 Census to analyze changes in worker demographics, educational attainment and business ownership over time. The 1980 Census five percent sample includes 11,343,120 observations weighted to represent 226,862,400 people. The sample includes 273,230 observations in Georgia, weighted to represent 5,464,600 individuals. A number of changes in variables and coding took place between the 1980 and 2000 Censuses.

Changes in race/ethnicity categories between censuses. Figure H-4 lists the seven BBC-defined racial/ethnic categories with the corresponding 1980 and 2000 Census race groups. Combinations of race types are available in the 2000 Census but not in the 1980 Census. The Bureau of the Census introduced categories in 2000 representing a combination of race types to allow individuals to select multiple races when responding to the questionnaire.

For example, an individual who is primarily white with Native American ancestry could choose the "white and American Indian/Alaska Native" race group in 2000. However, if the same individual received the 1980 Census questionnaire, she would need to choose a single race group — either "white" or "American Indian/Alaska Native." Such a choice would ultimately depend on unknowable factors including how strongly the individual identifies with her Native American heritage.

In addition, data analysts do not have information about the proportions of individual ancestry in 2000 and can only know that a particular individual has mixed ancestry. The variability introduced by allowing multiple race selection complicates direct comparisons between years with respect to race and ethnicity. Even so, 98 percent of survey respondents in 2000 indicated a single race.[3]

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[3] Grieco, Elizabeth M. & Rachel C. Cassidy. "Overview of Race and Hispanic Origin," *Census 2000 Brief*, March 2001, page 3.

Figure H-3.
BBC race/ethnic categories compared with Census race and Hispanic Origin survey questions, 1980 and 2000

BBC-defined race/ethnic categories	2000 Census	1980 Census
African American	**Hispanic origin:** no **Race:** Black/Negro alone or in combination with any other non-Hispanic group	**Hispanic origin:** no **Race:** Black/Negro
Asian-Pacific American	**Hispanic origin:** no **Race:** Chinese, Taiwanese, Japanese, Filipino, Korean, Vietnamese, Cambodian, Hmong, Laotian, Thai, Indonesian, Malaysian, Samoan, Tongan, Polynesian, Guamanian/Chamorro, Native Hawaiian, Pacific Islander, Micronesian, Melanesian, or other Asian, either alone or in combination with any non-Hispanic, non-Black, or non-Native American groups	**Hispanic origin:** no **Race:** Chinese, Japanese, Filipino, Korean, Vietnamese, Native Hawaiian, Pacific Islander or other Asian
Subcontinent Asian American	**Hispanic origin:** no **Race:** Asian Indian, Bangladeshi, Pakistani or Sri Lankan, alone or in combination with white or other groups only	**Hispanic origin:** no **Race:** Asian Indian
Hispanic American	**Hispanic origin:** yes **Race:** any race groups, alone or in combination with other groups	**Hispanic origin:** yes **Race:** any or **Hispanic origin:** no **Race:** Spanish
Native American	**Hispanic origin:** no **Race:** American Indian or Alaskan Native tribe identified alone or in combination with any non-Hispanic, non-Black group	**Hispanic origin:** no **Race:** American Indian/Alaska Native
Other minority group	**Hispanic origin:** no **Race:** other race alone or in combination with white only	**Hispanic origin:** no **Race:** other race
Non-Hispanic white	**Hispanic origin:** no **Race:** white alone	**Hispanic origin:** no **Race:** white

Source: BBC Research & Consulting from the IPUMS program: http://usa.ipums.org/usa/.

Business ownership. BBC uses the Census "class of worker" variable (CLASSWKD) to determine self-employment. This variable is the same for 1980 and 2000 with one exception: the 1980 variable does not include a separate category for individuals who work for a wage or salary at a non-profit organization.

Changes in industry codes between Censuses. The Census definitions of some industries and sub-industries changed between 1980 and 2000. As a result, 1980 codes for the industry variable (IND) are not the same as 2000 IND codes in all cases. However, for the construction and engineering-related industries, the 1980 code corresponds directly to an equivalent 2000 code.

Geographic variables. For the analyses presented in the marketplace appendices, there were no substantial changes in geographic variables. BBC used the same variable (STATEFIP) available for 2000 Census data to identify Georgia in the 1980 data.

Changes in educational variables between Censuses. The 1980 Census PUMS data includes the same educational variable found in the 2000 Census data, although the questions used for each Census to capture educational attainment differed between the two surveys.[4]

2007-2009 American Community Survey (ACS) data. BBC also examined 2007-2009 ACS data from IPUMS. Conducted by the U.S. Census Bureau, the ACS uses monthly samples to produce annually updated data for the same small areas as the 2000 Census long-form.[5] Since 2005, the ACS has expanded to a roughly one percent sample of the population, based on a random sample of housing units in every county in the U.S. (along with the District of Columbia and Puerto Rico). The 2007-2009 ACS three-year estimates represent the average characteristics over the three-year period of time.

Applying the person-level population weights to the 3,006,322 observations included in the data, the 2007-2009 ACS dataset represents 304,192,356 people in the U.S. For Georgia, the 2007-2009 ACS dataset includes 283,271 observations representing 9,687,004 individuals.

With the exception of a few minor differences, the variables available for the 2007-2009 ACS dataset are the same as those available for the 2000 Census five percent sample.

Changes in race/ethnicity categories between 2000 Census and 2007-2009 ACS data. The 2000 Census five percent sample and the 2007-2009 ACS PUMS data use essentially the same numerical categories for the detailed race variable (RACED). However, in both samples, any category representing fewer than 10,000 people was combined with another category. As a result, some PUMS race/ethnicity categories that occur in one sample may not exist in the other, which could lead to inconsistencies between the two samples once the detailed race/ethnicity categories are grouped according to the seven broader categories. This issue is likely to affect only a very small number of observations. PUMS categories that were available in 2000 but not 2007-2009 (or vice versa) represented a very small percentage of the 2000 (or 2007-2009) population. Categories for the Hispanic variable (HISPAN) remained consistent between the two datasets.

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[4] For a more detailed explanation, see footnote 2.

[5] U.S. Census Bureau. *Design and Methodology: American Community Survey.* Washington D.C.: U.S. Government Printing 2009. Available at http://www.census.gov/acs/www/SBasics/desgn_meth.htm.

Other variables. Other variables used by BBC did not change between 2000 and 2007-2009. The variables CLASSWKD, LABFORCE, IND, OCC, PUMA, and EDUCD were consistent between datasets, with variable codes in each case representing the same categories.

Survey of Small Business Finances (SSBF)

The study team used the SSBF to analyze the availability and characteristics of small business loans.

The SSBF, conducted every five years by the Federal Reserve Board, collects financial data from non-governmental for-profit firms with fewer than 500 employees. This survey is a nationally representative sample, structured to allow for analysis of specific geographic regions, industry sectors, and racial and gender groups. The SSBF is unique as it provides detailed data on both firm and owner financial characteristics. For the purposes of this report, BBC used the surveys from 1998 and 2003, which are available at the Federal Reserve Board website.[6]

Data for 1998. The 1998 SSBF includes information from 3,561 small businesses. The survey oversampled minority-owned businesses, allowing for a more precise analysis of how race and ethnicity may affect loan and financial outcomes.

Categorizing owner race/ethnicity and gender. Definition of race and ethnic groups in the 1998 SSBF are slightly different than the classifications used in the 2000 Census and 2007-2009 ACS. In the SSBF, businesses are classified into the following five groups:

- Non-Hispanic white;

- Hispanic American;

- African American;

- Asian American;

- Native American; and

- Other (unspecified).

A business is considered Hispanic American-owned if more than 50 percent of the business is owned by Hispanic Americans, regardless of race. All businesses reporting 50 percent or less Hispanic American ownership are included in the racial group that owns more than half of the company. No firms reported ownership by "other."

Similarly, firms are classified as female-owned if more than 50 percent of the firm is owned by women. Firms owned half by women and half by men were counted as male-owned.

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[6] The Federal Reserve Board. *Survey of Small Business Finances, 1998* and *Survey of Small Business Finances, 2003*. Available online at http://www.federalreserve.gov/pubs/.

Defining selected industry sectors. In the 1998 SSBF, each business was classified according to SIC code and placed into one of eight industry categories:

- Construction;

- Mining;

- Transportation, communications and utilities;

- Finance, insurance and real estate;

- Trade;

- Engineering;

- Services (excluding engineering); or

- Agriculture, forestry and fishing.

Region variables. The SSBF divides the United States into nine Census Divisions. Along with Delaware, District of Columbia, Florida, Maryland, North Carolina, South Carolina, Virginia and West Virginia, Georgia resides in the South Atlantic Census Division (referred to in marketplace appendices as the South Atlantic region).

Loan denial variables. In the 1998 survey, firm owners were asked if they have applied for a loan in the last three years and whether loan applications were always approved, always denied, or sometimes approved and sometimes denied. For the purposes of this study, only firms that were always denied were considered when analyzing loan denial.

Data for 2003. The 2003 SSBF differs from previous surveys in terms of the population surveyed, the variables available and in data reporting methodology.

Population differences. Similar to the 1998 survey, the 2003 survey records data from businesses with 500 or fewer employees. The sample contains data from 4,240 firms, but in 2003, minority-owned firms were not oversampled. In the 1998 data, 7.3 percent of the survey firms were owned by Hispanic Americans, but that number dropped to 4 percent in the 2003 data. Representation in the sample also dropped for African American-owned (7.7% to 2.8%) and Asian American-owned firms (5.7% to 4.2%). The smaller sample sizes for minority groups in the 2003 SSBF affects the ability to conduct analyses related to differences in loan application outcomes for race and ethnic groups.

Variable differences. In the 2003 SSBF, businesses were able to give responses on owner characteristics for up to three different owners. The data also include a fourth variable that is a weighted average of other answers provided for each question. In order to define race/ethnicity and gender variables consistently from the 1998 to 2003 surveys, BBC used the final weighted average for variables on owner characteristics. Firms were then divided into race, ethnicity and gender groups according to the same guidelines used for the 1998 data.

Industry, region and loan denial variables for the 2003 survey were defined by the study team along the same guidelines as the 1998 survey, with one exception: the 2003 survey did not include any firms in the agriculture, forestry and fishing industry.

Data reporting. Due to missing responses to survey questions in both the 1998 and 2003 datasets, data were imputed to fill in missing values. For the 1998 SSBF data, missing values were imputed using a randomized regression model to estimate values based on responses to other questions in the survey. A single variable includes both reported and imputed values, and a separate "shadow variable" can be used to identify where missing values have been imputed. However, the missing values in the 2003 data set were imputed using a different method than in previous studies. In the 1998 survey data, the number of observations in the data set matches the number of firms surveyed. However, the 2003 data includes five implicates, each with imputed values that have been filled in using a randomized regression model.[7] Thus there are 21,200 observations in the 2003 data, five for each of the 4,240 firms surveyed. Across the five implicates, all non-missing values are identical, whereas imputed values may differ. In both data sets, therefore, when a firm answered a survey question, the response was not altered. However the method for filling in missing values differed between surveys.

As discussed in a recent paper about the 2003 imputations by the Finance and Economics Discussion Series, missing survey values can lead to biased estimates and inaccurate variances and confidence intervals.[8] These problems can be corrected through use of multiple implicates. In order to provide the most accurate analysis, BBC utilized all five implicates provided with the 2003 data in analysis of the survey.

Multiple implicates were not provided with the 1998 data, making the method of analysis used for the 2003 data inapplicable. To address this, the study team performed analysis two different ways, first only with observations whose data was not imputed and second with all observations. Differences in results were insignificant. For summary statistics using SSBF data, BBC included observations with missing values in the analyses. For the probit regression model presented in Appendix G, the study team did not include observations with imputed values for the depended variable, loan denial.

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[7] For a more detailed explanation of imputation methods, see the "Technical Codebook" for the *2003 Survey of Small Business Finances.*

[8] Lieu N. Hazelwood, Traci L. Mach and John D. Wolken. *Alternative Methods of Unit Nonresponse Weight Adjustments: An Application from the 2003 Survey of Small Businesses.* Finance and Economics Discussion Series Divisions of Research and Statistics and Monetary Affairs, Federal Reserve Board. Washington, D.C., 2007. http://www.federalreserve.gov/pubs/feds/2007/200710/200710pap.pdf.

Survey of Business Owners (SBO)

BBC used data from the 2007 SBO to analyze mean annual firm receipts. The SBO is conducted every five years by the U.S. Census Bureau. Data for the most recent publication of the SBO was collected in 2007. Response to the survey is mandatory, which ensures comprehensive economic and demographic information for business and business owners in the U.S. All tax-filing businesses and nonprofits were eligible to be surveyed: firms with and without paid employees. In 2007, almost 8 million firms were surveyed.

BBC examined SBO data relating to the number of firms, number of firms with paid employees and total receipts. This information is available by geographic location, industry, gender and race/ethnicity.

The SBO uses the 2002 North American Industry Classification System (NAICS) to classify industries. BBC analyzed data for firms in all industries and for firms in selected industries that corresponded closely to construction and engineering-related services.

To categorize the business ownership of firms reported in the SBO, the Census Bureau uses standard definitions for women-owned and minority-owned businesses. A business is defined as female-owned if more than half of the ownership and control is by women. Firms with joint male-/female-ownership were tabulated as an independent gender category. A business is defined as minority-owned if more than half of the ownership and control is African American, Asian American, Hispanic American, Native American or another minority group. Respondents had the option of selecting one or more racial groups when reporting on business ownership.

BBC reported business receipts for the following race/ethnicity and gender groups:

■   African American;

■   Asian American;

■   Hispanic American;

■   Native American; and

■   Women.

BBC also reported business receipts for all firms.

Home Mortgage Disclosure Act (HMDA) Data

BBC used HMDA data provided by the Federal Financial Institutions Examination Council (FFIEC) to analyze mortgage lending in Georgia and the nation. HMDA data provide information on mortgage loan applications received by financial institutions, savings banks, credit unions and some mortgage companies. These data include information about the location, dollar amount, and types of loans made, as well as race and ethnicity, income, and credit characteristics of loan applicants. Data are available for home purchase, home improvement and refinance loans.

Financial institutions were required to report 2009 HMDA data if they had assets of more than $39 million ($35 million for 2006), had a branch office in a metropolitan area, and originated at least one home purchase or refinance loan in the reporting calendar year. Mortgage companies were required to report HMDA if they are for-profit institutions, had home purchase loan originations exceeding 10 percent of all loan obligations in the past year, were located in an Metropolitan Statistical Area (or originated five or more home purchase loans in an MSA) and either had more than $10 million in assets or made at least 100 home purchase or refinance loans in the calendar year.

BBC used these data to examine loan denial rates and subprime lending rates for different racial and ethnic groups in 2006 and 2009. Note that the HMDA data represent the entirety of home mortgage loan applications reported by participating financial institutions in each year examined; these data are not a sample. However, BBC did not report loan denial rates or subprime lending rates in cases where there were fewer than 25 loans in a particular category. Appendix G provides detailed explanation of the methodology used for measuring loan denial and subprime lending rates.